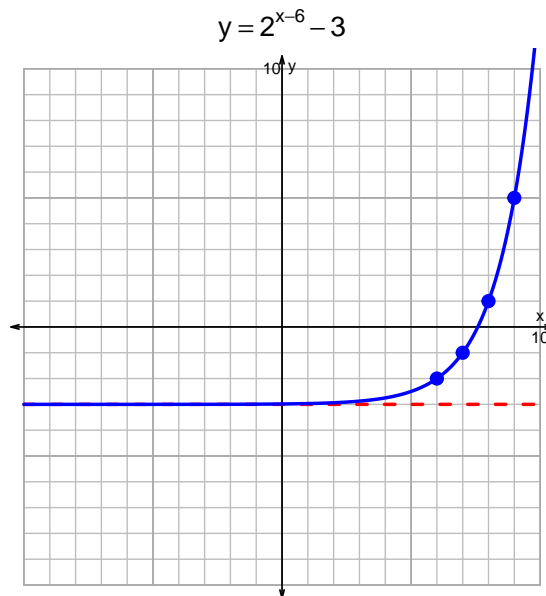
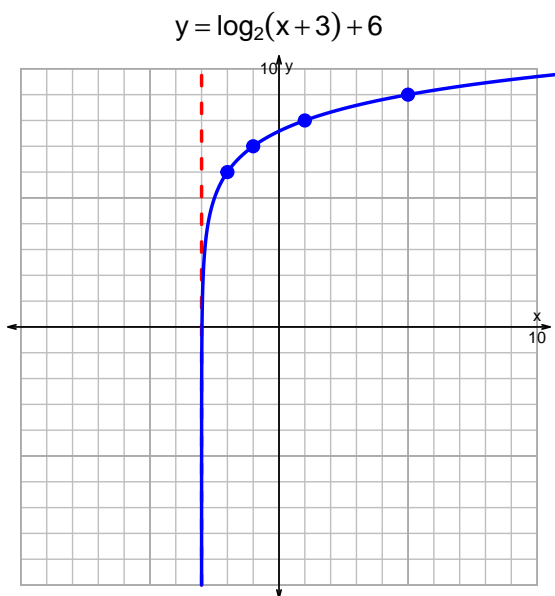


Name: _____

Date: _____

s18QUIZ: EXP LOG (SLTN v255)

1. Graph $y = \log_2(x + 3) + 6$ and $y = 2^{x-6} - 3$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-11 = \left(\frac{-5}{3}\right) \cdot 10^{7t/4}$$

Divide both sides by $\frac{-5}{3}$.

$$\frac{11 \cdot 3}{5} = 10^{7t/4}$$

Take log, base 10, of both sides.

$$\log_{10} \left(\frac{11 \cdot 3}{5} \right) = \frac{7t}{4}$$

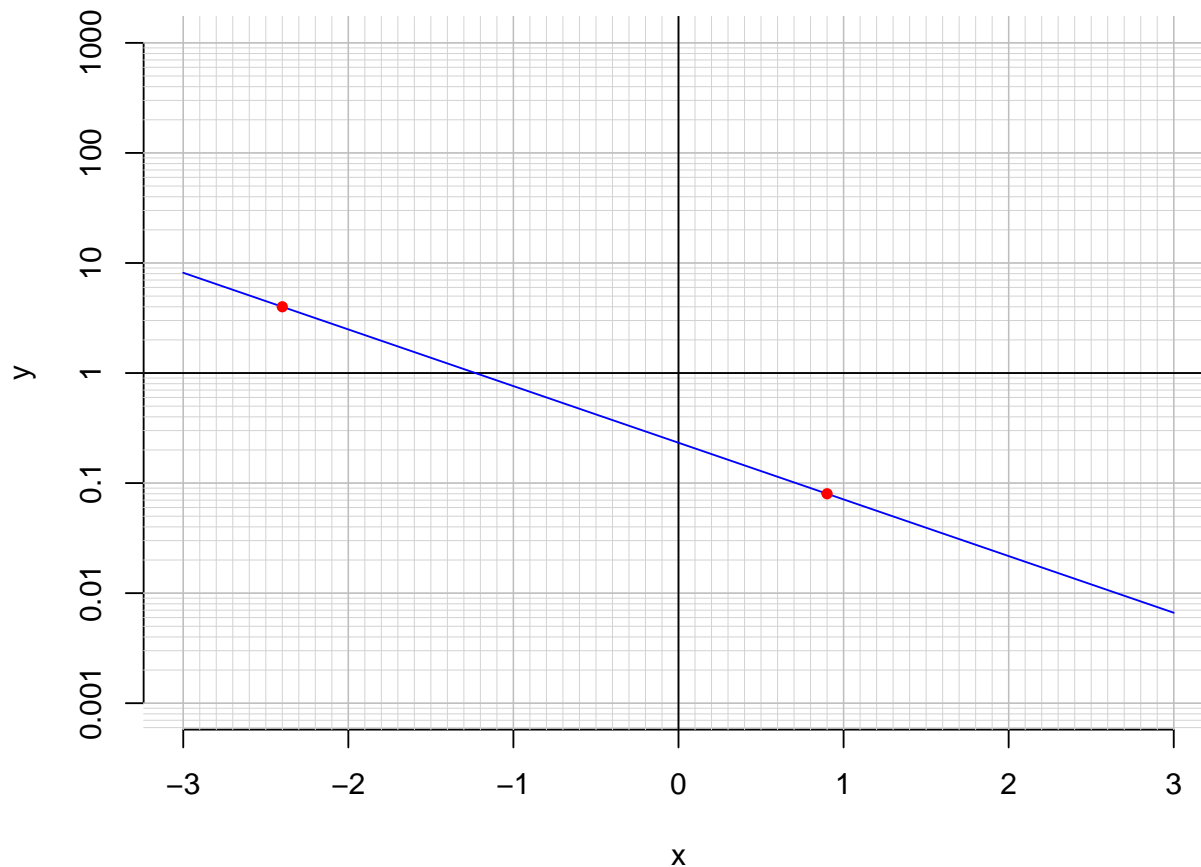
Divide both sides by $\frac{7}{4}$.

$$\frac{4}{7} \cdot \log_{10} \left(\frac{11 \cdot 3}{5} \right) = t$$

Switch sides.

$$t = \frac{4}{7} \cdot \log_{10} \left(\frac{11 \cdot 3}{5} \right)$$

3. An exponential function $f(x) = 0.233 \cdot e^{-1.19x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(-2.4)$.

$$f(-2.4) = 4$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{-1}{1.19} \cdot \ln\left(\frac{x}{0.233}\right)$$

- c. Using the plot above, evaluate $f^{-1}(0.08)$.

$$f^{-1}(0.08) = 0.9$$